#### OVID TVO. 0704-0708 Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and management of the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO 1. REPORT DATE (DD-MM-YYYY) 2. REPORT TYPE 3. DATES COVERED (From - To) 03-05-2010 **FINAL** 4. TITLE AND SUBTITLE 5a. CONTRACT NUMBER **Engage in the Arctic Now or Risk Being Left Out in the Cold: 5b. GRANT NUMBER** Establishing a JIATF - High North **5c. PROGRAM ELEMENT NUMBER** 6. AUTHOR(S) **5d. PROJECT NUMBER** 5e. TASK NUMBER LCDR Peggy Stolyarova 5f. WORK UNIT NUMBER Paper Advisor (if Anv): CAPT Mark E. Donahue 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) 8. PERFORMING ORGANIZATION REPORT NUMBER Joint Military Operations Department Naval War College 686 Cushing Road Newport, RI 02841-1207 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) 10. SPONSOR/MONITOR'S ACRONYM(S)

#### 12. DISTRIBUTION / AVAILABILITY STATEMENT

Distribution Statement A: Approved for public release; Distribution is unlimited.

REPORT DOCUMENTATION PAGE

**13. SUPPLEMENTARY NOTES** A paper submitted to the Naval War College faculty in partial satisfaction of the requirements of the Joint Military Operations Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.

#### 14. ABSTRACT

Predictions vary regarding the time-line of when relatively ice free summers in the Arctic will occur, however the most aggressive of these models have shown an estimate as early as 2013. According to Professor Maslowski at the Naval Post Graduate School, who proposed this timeline, this estimate might even be too cautious. Time will show which prediction is correct, but either way, the fact remains that increased activity in the Arctic is becoming a reality. The signing of NSPD 66/HSPD 25 by former President Bush as well as the establishment of Task Force Climate Change by the Chief of Naval Operations followed by the development of an Arctic Roadmap for the Navy show that the importance of the Arctic to the National Security of the United States is being taken seriously by the powers that be. With the United States involved in two wars as well as current budget constraints, there is a limit to how much action can be taken towards securing the Arctic interests in a timely fashion. However, as Canadian Prime Minister Stephen Harper so aptly noted, the "first principle of Arctic sovereignty [is] use it or lose it." He also stated that, "To develop the North, we must know the North. To protect the North, we must control the North. And to accomplish all our goals for the North, we must be in the North." The United States would be well served to heed these words of wisdom. By expeditiously establishing a Joint Interagency Task Force – High North, two major steps towards securing the United States' interests in the Arctic could be immediately realized. It would send a much needed signal to all Arctic Stakeholders that the United States is committed to ensuring a peaceful and cooperative Arctic environment, while also physically establishing a foundational organization within the Arctic to protect the country's vital national interests.

#### 15. SUBJECT TERMS

Arctic; Joint Interagency Task Force – High North; JIATF-High North

16. SECURITY CLASSIFICATION OF:			17. LIMITATION	18. NUMBER	19a. NAME OF RESPONSIBLE PERSON
			OF ABSTRACT	OF PAGES	Chairman, JMO Department
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED		30	19b. TELEPHONE NUMBER (include area code) 401-841-3414

Standard Form 298 (Rev. 8-98)

Form Approved

OMB No. 0704-0188

11. SPONSOR/MONITOR'S REPORT

NUMBER(S)

# NAVAL WAR COLLEGE Newport, R.I.

Engage in the Arctic Now or Risk Being Left Out in the Cold: Establishing a JIATF-High North

by

Peggy Stolyarova

LCDR, U.S. Navy

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature:	

May 3, 2010

# **Contents**

Introduction	1
Why the Arctic is Important	2
Potential for Conflict and Cooperation	4
The Necessity for Urgency	8
Why a JIATF?	10
Counterargument	13
Recommendations	16
Conclusion	16
Illustrations	18
Bibliography	23

# **List of Illustrations**

Figure	Title		
1.	Why the Arctic Warms Faster than Lower Latitudes	18	
2.	Maritime Jurisdiction and Boundaries in the Arctic Region	19	
3.	Arctic sea routes - Northern Sea Route and Northwest passage	20	
4.	Decline in Arctic Ocean Multiyear Sea Ice Coverage (1999-2009)	21	
5.	42% Loss of Multi-Year Sea Ice Between January 2004-2008	22	

#### **Abstract**

Predictions vary regarding the time-line of when relatively ice free summers in the Arctic will occur, however the most aggressive of these models have shown an estimate as early as 2013. According to Professor Maslowski at the Naval Post Graduate School, who proposed this timeline, this estimate might even be too cautious. Time will show which prediction is correct, but either way, the fact remains that increased activity in the Arctic is becoming a reality. The signing of NSPD 66/HSPD 25 by former President Bush as well as the establishment of Task Force Climate Change by the Chief of Naval Operations followed by the development of an Arctic Roadmap for the Navy show that the importance of the Arctic to the National Security of the United States is being taken seriously by the powers that be. With the United States involved in two wars as well as current budget constraints, there is a limit to how much action can be taken towards securing the Arctic interests in a timely fashion. However, as Canadian Prime Minister Stephen Harper so aptly noted, the "first principle of Arctic sovereignty [is] use it or lose it." He also stated that, "To develop the North, we must know the North. To protect the North, we must control the North. And to accomplish all our goals for the North, we must be in the North." The United States would be well served to heed these words of wisdom. By expeditiously establishing a Joint Interagency Task Force – High North, two major steps towards securing the United States' interests in the Arctic could be immediately realized. It would send a much needed signal to all Arctic Stakeholders that the United States is committed to ensuring a peaceful and cooperative Arctic environment, while also physically establishing a foundational organization within the Arctic to protect the country's vital national interests.

#### **INTRODUCTION**

Time is running out for the United States to assert its position as an Arctic Nation by ensuring the capability to protect the vital interests that an ice-free arctic promises and to counter any potential threats that the increasing accessibility creates. Predictions vary regarding the time-line of when relatively ice free summers in the Arctic will occur, however the most aggressive of these models have shown an estimate as early as 2013. According to Professor Maslowski at the Naval Post Graduate School who proposed this timeline, this estimate might even be too cautious. 1 Time will show which prediction is correct, but either way, the fact remains that increased activity in the Arctic is becoming a reality. The signing of National Security Presidential Directive-66/Homeland Security Presidential Directive-25 (NSPD-66/HSPD-25) by former President Bush, as well as the establishment of Task Force Climate Change by the Chief of Naval Operations, which was followed by the development of an Arctic Roadmap for the Navy, show that the importance of the Arctic to the National Security of the United States is being taken seriously by the powers that be. With the United States involved in two wars as well as current budget constraints, there is a limit to how much action can be taken towards securing the Arctic interests in a timely fashion. However, as Canadian Prime Minister Stephen Harper so aptly noted, the "first principle of Arctic sovereignty [is] use it or lose it."<sup>2</sup> He also stated, "To develop the North, we must know the North. To protect the North, we must control the North. And to accomplish all our goals for the North, we must be in the North." <sup>3</sup> Bv expeditiously establishing a Joint Interagency Task Force - High North ("JIATF-High North"),

.

<sup>&</sup>lt;sup>1</sup> Jonathan Amos, "Arctic Summers Ice-free 'by 2013," *BBC News*, (12 December, 2007), <a href="http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7139797.stm">http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7139797.stm</a> [accessed 11 April 2010].

<sup>&</sup>lt;sup>2</sup> Vsevolod Gunitskiy, "On Thin Ice: Water Rights and Resource Disputes in the Arctic Ocean," *Journal of International Affairs*, no. 61(Spring 2008), <a href="http://proquest.umi.com/login/user">http://proquest.umi.com/login/user</a>> [accessed 16 March 2010]. <sup>3</sup> Lance M. Bacon, "Ice breaker," *Armed Forces Journal*, (March 2010): 17.

<sup>&</sup>lt;sup>4</sup> Olin K. Strader, <Olin.Strader@northcom.mil> "Arctic Topics." [E-mail to Paul Matthews <paul.matthews @usnwc.edu>] 07 December 2009. The term, "JIATF-High North" was used by Olin Strader in this e-mail.

two major steps towards securing United States' interests in the Arctic could be immediately realized. It would send a much needed signal to all Arctic Stakeholders that the United States is committed to ensuring a peaceful and cooperative Arctic environment, while also physically establishing a foundational organization within the Arctic to protect the country's vital national interests.

# WHY THE ARCTIC IS IMPORTANT

As previously mentioned, higher level guidance has shown that at the strategic level the Arctic is considered vital to United States' national interests. In NSPD-66/HSPD-25, the President clearly outlined the six specific policies of the United States as an Arctic Nation:

- 1) Meet the national security and homeland security needs relevant to the Arctic region.
- 2) Protect the Arctic environment and conserve its biological resources.
- 3) Ensure that natural resource management and economic development in the region are environmentally sustainable.
- 4) Strengthen institutions for cooperation among the eight Arctic nations (the United States, Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, and Sweden).
- 5) Involve the Arctic's indigenous communities in decisions that affect them.
- 6) Enhance scientific monitoring and research into local, regional and global environmental issues.<sup>5</sup>

The increasingly accessible Arctic is important to United States' national interests for a variety of economic as well as geo-strategic reasons. The Intergovernmental Panel on Climate Change 4<sup>th</sup> Assessment Report concluded that the Arctic is experiencing much more rapid

2

<sup>&</sup>lt;sup>5</sup> The U.S. President, "National Security Presidential Directive-66/Homeland Security Presidential Directive-25, 2009, Arctic Region Policy," < http://www.nsf.gov/od/opp/opp\_advisory/briefings/may2009/nspd66\_hspd25.pdf> [accessed 13 March 2010].

climate change than the rest of the world.<sup>6</sup> The reason for this is best explained in an illustration from the Arctic Climate Impact Assessment shown in Figure 1. As a result of this rapid climate change and the reduction of ice in the Arctic, a new frontier is opening that can increasingly be explored, transited, exploited and fought over. Economically, the Arctic is believed to hold vast amounts of natural resources which include minerals, offshore oil and gas, and fisheries which are becoming more accessible with the decreasing ice cover. The exploitation of these resources is complicated by the fact that all eight Arctic nations have disputed claims in the Arctic.<sup>7</sup> In addition to these claims, even non-Arctic nations such as China, are demonstrating an interest in exploiting these vast resources.<sup>8</sup> Untapped resources coupled with disputed claims and outside interest aggravate the potential for international conflict.

Another issue that overlaps both the economic as well as geo-strategic aspects is developing as a result of increased accessibility in the Arctic. This is the increase in maritime traffic, such as fishing vessels, tourist boats, scientific research vessels, and commercial shipping. The promised resources, excitement of exploring new frontiers, and the growing potential for alternate commercial maritime traffic routes are the major attractors. History has shown that civilian endeavors in the maritime domain require military presence to defend or exploit those endeavors, resulting in an increased potential for conflict. The risks posed by the increased traffic have raised serious concerns with regards to national security, sovereignty, pollution, safety, and search and rescue (SAR) for all of the Arctic nations.

-

<sup>&</sup>lt;sup>6</sup> S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller, eds., *IPCC*, 2007: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. (New York: Cambridge University Press, 2007): 37.

<sup>&</sup>lt;sup>7</sup> Mark Galeotti, "Cold Calling - Competition Heats up for Arctic Resources," *Janes Intelligence Review*, (18 September 2008), <a href="http://www.janes.com">http://www.janes.com</a> [accessed 1 March 2010].

<sup>&</sup>lt;sup>8</sup> Linda Jakobson, "China Prepares for an Ice-Free Arctic," *SIPRI Insights on Peace and Security*, no. 2010/2 (March 2010), < http://books.sipri.org/files/insight/SIPRIInsight1002.pdf> [accessed 10 March 2010].

## POTENTIAL FOR CONFLICT AND COOPERATION

The disputed claims that all of the Arctic nations have in the Arctic region creates an enormous potential for conflict. Figure 2 from Durham University gives a good visual of the maritime boundaries as well as the disputed areas of all of the Arctic nations. The issues which most directly affect the United States are: 1) The dispute between the United States and Canada over the 7000sq nm triangle in the Beaufort Sea; 2) Canada's claim that part of the Northwest Passage contains internal waters while the United States claims they are international straits; and 3) Russia's similar claim that the Northern Sea Route, or the Northeast Passage as it is also called, contains internal waters while the United States claims they are international straits. Both sea routes are depicted in Figure 3.

While the potential resources contained in the disputed area of the Beaufort Sea may not pose a large problem with regards to negotiations between the two Allies, the Northern Sea Routes may be a more difficult area for negotiations.

In regards to negotiations between the United States and Canada over the disputed area in the Beaufort Sea, Michael Byers mentions in his book, Who Owns the Arctic: Understanding Sovereignty Disputes in the North, "For better or worse, Chapter Six of the North American Free Trade Agreement created a common energy market between Canada and the United States and thus reduced the significance of sovereign jurisdiction over hydrocarbons." He also goes on to suggest a couple of viable options for compromise such as dividing the area equally, or creating a "joint development regime for energy resources in the disputed zone – a relatively unusual approach that has worked before including in the Arctic."

<sup>&</sup>lt;sup>9</sup> Michael Byers, *Who Owns the Arctic?: Understanding Sovereignty Disputes in the North* (Berkeley: Douglas & McIntyre Publishers 2010), 115.

<sup>&</sup>lt;sup>10</sup> Byers, 116.

Unfortunately the issues regarding the status of the two sea routes aren't likely as easy to resolve as the Beaufort Sea dispute. Although, Mr. Byers also gives a compelling argument as to why the Northwest Passage being Canada's internal waters would be beneficial to the United States for security reasons, it is not so cut and dry. The main aspect of his argument is that by Canada being able to exert more control over the vessels which transit the Northwest Passage this would minimize the danger of terrorist activity for the United States. <sup>11</sup> This of course is a high priority for the United States, particularly after the attacks of September 11, 2001.

One difficulty associated with the United States agreeing to Canada's claim, is that it would make it that much harder to dispute Russia's similar claim over the Northern Sea Route. The difference of whether the two routes are international straits versus internal waters is primarily a matter of how much control the current legal regimes allow Russia and Canada to exert over the vessels that transit the areas. The United States is concerned that the amount of control that might be exerted if these waters are designated internal waters could hinder freedom of navigation, especially with regards to the transit of military vessels.

Another potential area for conflict is the increase in military buildup by all of the Arctic nations. As Mark Galeotti noted in his article, for Russia, "Under Medvedev, aerial patrols of the Arctic have increased, and in July 2008 Moscow announced that it was also going to resume naval patrols of the Arctic by warships from its Northern Fleet." Galeotti also noted, Canada, has "pledged to establish a deepwater port and naval base at the abandoned mining town of Nanisivik, on the northern tip of the Baffin Islands, to be operational by 2012. . . . A new army

<sup>&</sup>lt;sup>11</sup> Ibid.

<sup>&</sup>lt;sup>12</sup> The Commander's Handbook on the Law of Naval Operations NWP 1-14M gives a good explanation of the United Nations Convention on the Law of the Sea requirements for designation of internal waters versus international straits. UNCLOS does not clearly address the issues that are specific to Arctic waters that have historically been enclosed in ice but are now navigable for at least part of the year.

<sup>13</sup> Galeotti.

cold-weather training base is being built at Resolute, only 650 km from the North Pole. Army and air force facilities at settlements such as Inuvik have been reopened, and decommissioned early-warning stations are once again up and running." In an article by Gerard O'Dwyer in 2009, he mentions that, "this fall, the Danish government will discuss with military chiefs the potential cost and logistics of a new Arctic military Command Structure." He also states that "Norway planned to open its new Operational Command headquarters near Bodo on Aug. 1, making it the first country to move its military command leadership to the Arctic." While not classified as military build-up, even nations that do not boarder the Arctic have demonstrated an interest in exploiting the resources. Sharon Hobson and Casandra Newell pointed out in their article, that "China has sent research vessels to the frozen north. A Chinese research ship, *Snow Dragon*, paid a surprise visit to Tuktoyuktuk in 1999 [a small Inuit village in Western Canada not far from the Alaska/Canada border] and has been in the region three times since."

Fortunately there also many areas for potential cooperation which could be leveraged if acted upon soon. As the Arctic becomes more accessible and more trafficked, the need for SAR, navigational aids, infrastructure, communication and navigation satellites, and monitoring of the environment for safety and security reasons becomes more important. All of these tasks require significant amounts of funding and assets which could be reduced through partnering with other nations, as well as commercial, intergovernmental organizations (IGOs), non-governmental organizations (NGOs), indigenous people, and the scientific community.

<sup>14</sup> Ibid.

<sup>&</sup>lt;sup>15</sup> Gerard O'Dwyer, "Russia Warns Denmark over Arctic Arms Race," *Defense News*, (3 Aug 2009), <a href="http://proquest.umi.com/login/user">http://proquest.umi.com/login/user</a>> [accessed 3 March 2010].

<sup>&</sup>lt;sup>17</sup> Sharon Hobson and Casandra Newell, "Shrinking Ice Cover Creates Opportunities and Threats," *Janes Navy International*, (18 December 2008), <a href="https://janes.com">http://janes.com</a>> [accessed 1 March 2010].

Even though Russia has a head start in most of these areas as they already have a significant presence with ports, military and ice breaker capability, they cannot do all of this alone. All of the Arctic nations, including Russia, are facing huge budget constraints which are making it extremely difficult to meet all of the demands that a more accessible Arctic create. As Vsevolod Gunitskiy points out, "Few countries are equipped to engage the Arctic alone. Despite the general aura of pride and paranoia on Russian television, even the flag-planting was an international affair, with a participating Swede and Australian who paid \$3 million each for their tickets."18 The flag planting was conducted by a Russian submarine which planted a flag on the Arctic seabed at the North Pole in August 2007. 19 Russia has also stated in their Arctic Policy the desire for the Arctic as a "zone of peace and cooperation." One example of cost and resource savings is the United States and Canadian joint expedition to survey the extended continental shelf.<sup>21</sup> The Nordic nations have also submitted a proposal, known as the Stoltenberg Report, that lists 13 areas that offer potential for cooperation and they have expressed an interest to include the other Arctic nations as well.<sup>22</sup> If conducted properly, the fostering of cooperation between the Arctic states could help to minimize the areas of potential conflict.

<sup>&</sup>lt;sup>18</sup> Gunitskiy

<sup>&</sup>lt;sup>19</sup> In August 2007, a Russian submarine planted a flag on the Arctic seabed at the North Pole. While seen as a threatening gesture by many, it was also compared to the United States flag planting on the Moon. The latter was widely accepted as a purely symbolic gesture and not as a statement that the United States believes it owns the Moon.

<sup>&</sup>lt;sup>20</sup> Russian Strategy, "Basics of the State Policy of the Russian Federation in the Arctic for the period til 2020 and for a further Perspective," (Sept 18, 2008), < http://www.arcticgovernance.org/russia-basics-of-the-state-policy-of-the-russian-federation-in-the-arctic-for-the-period-till-2020-and-for-a-further-perspective.4651232-142902.html> [accessed 2 April 2010].

<sup>&</sup>lt;sup>21</sup> State Department, "Press Release: U.S.-Canada Joint Expedition to Survey the Extended Continental Shelf in the Arctic," *State Department Document*, (Jul 28, 2009), <a href="http://proquest.umi.com">http://proquest.umi.com</a> [accessed 3 March 2010]. 
<sup>22</sup> Thorvald Stoltenberg, "Nordic Cooperation on Foreign and Security Policy: Proposals presented to the extraordinary meeting of Nordic foreign ministers in Oslo on 9 Feb 2009," (9 Feb 2009), <a href="http://www.mfa.is/media/Frettatilkynning/Nordic\_report.pdf">http://www.mfa.is/media/Frettatilkynning/Nordic\_report.pdf</a>> [accessed 22 March 2010].

## THE NECESSITY FOR URGENCY

One of the main reasons that urgency is paramount is the fact that the sea ice is disappearing at an alarming rate as shown in Figures 4 and 5. This has significantly sped up the timeline in which the potential conflict and cooperation discussed previously could emerge.

Rear Admiral David Titley and Courtney C. St. John pointed out that, "although estimates for when the Arctic will experience ice-free conditions in the summer range anywhere from 2013 to 2060, the consensus of most models and researchers is that the Arctic will experience ice-free conditions for a portion of the summer by 2030." It is important to note here that "ice-free" may be a bit misleading. Although "ice-free" means that the waters may be navigable, this does not necessarily mean free from the hazards of drifting ice. As noted in the Arctic Council's Arctic Marine Shipping Assessment 2009 Report, "An area can be determined to be ice-free and still have ice-related dangers, such as bergy bits and pan ice, which are hard to detect and can damage a vessel." 24

While it is hard to say for sure which time estimate is correct for the "ice-free" summers, Dr. Wieslaw Maslowski from the Naval Post Graduate School gives a pretty good argument for 2013. His explanation for the difference between other models and his own is due in a large part to the others relying primarily on 2-dimensional changes in the Arctic sea ice and not accurately taking into consideration the reduction in the thickness of the ice. <sup>25</sup> He even questions his own estimate, which he made about 7 years ago, as possibly being too late. In an article by Jonathan Amos, Dr. Maslowski is quoted as saying, "Our projection of 2013 for the removal of ice in

<sup>23</sup> Rear Admiral David W. Titley, USN, and Courtney C. St. John, "Arctic Security Considerations and the U.S. Navy's Roadmap for the Arctic," *Naval War College Review*, no. 63 (Spring 2010): 36.

<sup>&</sup>lt;sup>24</sup> Arctic Council, "Arctic Marine Shipping Assessment 2009 Report," <a href="http://arctic-council.org/filearchive/amsa2009report.pdf">http://arctic-council.org/filearchive/amsa2009report.pdf</a>> [accessed 26 March 2010]: 89.

<sup>&</sup>lt;sup>25</sup> Miwa Tominaga, "Dr. Wieslaw Maslowski predicted a 2013 Ice Free Summer Arctic Five Years Ago – Now he says that May Have Been Too Conservative," Beyond *zero Emissions*, (24 March 2008), <a href="http://www.beyondzeroemissions.org/print/48">http://www.beyondzeroemissions.org/print/48</a>> [accessed 11 April 2010].

summer is not accounting for the last two minima, in 2005 and 2007...so given that fact, you can argue that maybe our projection of 2013 is already too conservative."<sup>26</sup>

Regardless of the estimate that is to be believed, the extreme reduction in ice is hard to dispute. As depicted on the National Oceanic Atmospheric Administration slide in Figure 4, it is clear that not only has the area of ice significantly decreased, but the amount of multi-year ice has dropped substantially. In a brief by James Overland of NOAA, he stated that there has been a "42% loss of multi-year (thick) sea ice between January 2004 and 2008.<sup>27</sup> This slide can be seen in Figure 5.

Another reason for urgency is that there are many who perceive that the United States is not supporting their words with action when it comes to their interests in the Arctic. Scott Borgerson stated in his article in Foreign Affairs that, "while other Arctic powers are racing to carve up the region, the United States has remained largely on the side-lines." He reasoned this is due partly to the failure of the United States to ratify the United Nations Convention on the Law of the Sea (UNCLOS) which prevents the United States from formally asserting any rights to resources beyond the EEZ as well as preventing the United States from joining the United Nations commission that adjudicates such claims. He also pointed out that while the United States commands the largest naval fleet in the world, it has neglected to maintain its icebreaking capability. The United States currently has only 3 icebreakers, not all of which are operational;

<sup>&</sup>lt;sup>26</sup> Amos.

<sup>&</sup>lt;sup>27</sup> James Overland, "Summer Sea Ice is Leaving the Arctic within 30 Years," NOAA/Pacific Marine Environmental Laboratory, Seattle, WA, (presentation, U.S. Naval Academy, Alumni Center, Annapolis MD, 10 June 2009) <a href="http://www.star.nesdis.noaa.gov/star/documents/2009Ice/Day2/Overland\_day2.pdf">http://www.star.nesdis.noaa.gov/star/documents/2009Ice/Day2/Overland\_day2.pdf</a> [accessed 13 April 2010].

<sup>&</sup>lt;sup>28</sup> Scott G. Borgerson, "Arctic Meltdown: The Economic and Security Implications of Global Warming," *Foreign Affairs*, no. 87 (Mar/Apr 2008), <a href="http://proquest.umi.com/login/user">http://proquest.umi.com/login/user</a>> [accessed 11 April 2010].

<sup>&</sup>lt;sup>30</sup> Ibid.

while Russia has 20, out of which 8 are nuclear powered.<sup>31</sup> Even China, who is not an Arctic Nation, has one ice-breaker.<sup>32</sup>

Borgerson also warns that the "decisions made by Arctic powers in the coming years will profoundly shape the future of the region for decades." Russia's Deputy Prime Minister Sergei Ivanov was quoted in the most recent edition of Joint Forces Quarterly as warning, "If we do not develop the Arctic, it will be developed without us." If the United States does not engage quickly and counter the perception that it is not interested in asserting itself as an Arctic nation with regards to decisions and opportunities for cooperation, it may become too late and the United States might be left to fend for itself.

#### WHY A JIATF?

Despite perceptions, the United States has not exactly been idle with regards to their Arctic interests. The signing of NSPD-66/HSPD-25 as well as the release of the Navy's Arctic Roadmap which outlines the plans for analyzing the Navy's mission in the Arctic and the follow-on plans for meeting those needs, were good first steps. According to the Navy's Arctic Roadmap, in fiscal years 2013 and 2014, it should start allocating the funds necessary for meeting the missions in the Arctic.<sup>35</sup> To assert the United States' standing as an Arctic Nation and to ensure that economic and security interests are safeguarded, hard assets such as icebreakers, polar-orbiting satellites for communication and navigation, ports and infrastructure,

<sup>&</sup>lt;sup>31</sup> Admiral Thad Allen, "An Address by Admiral Thad W. Allen, Commandant, United States Coast Guard," (lecture, Naval War College, Newport, RI, March 23, 2010).

<sup>&</sup>lt;sup>32</sup> Borgerson.

<sup>33</sup> Ibid

<sup>&</sup>lt;sup>34</sup> Katarzyna Zysk, "Russia's Arctic Strategy: Ambitions and Constraints," *Joint Forces Quarterly*, no. 57 (2<sup>nd</sup> Quarter 2010): 110.

Task Force Climate Change, "Navy Arctic Roadmap," (9 Nov 2010) < http://www.wired.com/images\_blogs/dangerroom/2009/11/us-navy-arctic-roadmap-nov-2009.pdf> [accessed 22 March 2010].

aids to navigation, etc., will need to be developed. However these things can take years to fund, research, develop and implement and if in 2013 the allocation of funding will only just be beginning, it is easy to see that it will be a while before any real visual progress will be apparent.

Establishing a JIATF-High North could help bridge this gap by demonstrating an overt and concrete step in the commitment towards the U.S. Arctic Policy in a much shorter timeframe. While it does take an extensive amount of time for a JIATF to become fully functional and fully staffed, the initial process of physically establishing a location and providing a minimal starting staff could be realized fairly quickly. In addition to sending the signal that the United States is no longer sitting idly by, a JIATF- High North would provide the means with which to leverage all elements of national power and act as a central clearing house for operational level whole of government coordination and execution. It would also provide the means with which to engage all Arctic Stakeholders at the operational and theater strategic level and exploit opportunities for partnerships and cooperation, while also coordinating their efforts with the Arctic Council. The ball has already begun rolling as other nations explore the methods that they will use to secure their interests in the Arctic and various agencies and commercial entities within, and outside of the United States, are also looking at how to proceed with their interests. Before these plans have been written in stone and the United States has been left without a say, a solid step needs to be made which will create an avenue for cooperation and ensure that the United States is a key player. This step can be realized through the creation of a JIATF-High North.

As Mead Treadwell, Chair U.S. Arctic Research Commission, noted in his testimony before the Senate Committee on Appropriations, "...as I think of the task of implementation ahead of us for the nation, it comes down to three things, 'i-words,' if you will: **investigation**,

investment, and international cooperation [emphasis in original]."<sup>36</sup> Another version of "i-words" that would also apply are: international, interagency and inter-service. Cooperation and coordination between all three are necessary to ensure that the limited resources are efficiently and effectively utilized to accomplish the various objectives in the Arctic. Establishing a JIATF-High North will facilitate the much needed cooperation and coordination between all of the Arctic stakeholders which include the Arctic nations, various non-Arctic nations, indigenous people of the Arctic, as well as various IGOs, NGOs, and other interested individuals. The JIATF- High North would also provide a venue where issues relating to Homeland Security could be addressed and the optimal solution for employing the various entities involved could be resolved and thus create a foundation for future security solutions as the hard assets are obtained.

Looking at the Arctic through the lens of the operational factors of space, time and force helps to explain the issues. The space is large, approximately the size of the United States; predominately uncharted to current navigational standards; hostile environment for equipment and personnel; minimal ports and infrastructure create challenges to operations as well as logistics; and politically complicated due to the disputed areas, indigenous populations, and the considerations for protecting the relatively pristine environment. The time for preparation, decisions, and deployment is in short supply with the rapid increase in ice-melt as well as the increased activity in the Arctic. The forces available to project United States' power in the Arctic are insufficient. The United States has only three ice-breakers, not all of which are operational, inadequate equipment for the environment, inadequate numbers of personnel trained to operate in the extreme environment, and the limited forces already committed to two wars in

<sup>&</sup>lt;sup>36</sup> Mead Treadwell, Chair U.S. Arctic Research Commission, testimony before the Senate Committee on Appropriations, Homeland Security Subcommittee Field Hearing, "U.S. Strategic interests in the age of an accessible Arctic...What we need to know and do now," University of Alaska Anchorage on Aug 20, 2009. <a href="http://www.arctic.gov/testimony/treadwell-08-20-09.pdf">http://www.arctic.gov/testimony/treadwell-08-20-09.pdf</a>> [accessed 26 March 2010].

the Middle East. As noted, the wheels are turning to rectify this shortfall, however the time is ticking. Establishing a JIATF would provide an interim operational and theater-strategic level force and buy some time for reconstituting, while at the same time establishing a joint/ interagency headquarters at the operational and theater-strategic level with which to address the various Arctic issues even after a more permanent force can be established.

#### **COUNTERARGUMENTS**

One argument against this solution is that the Arctic Council which was established to promote cooperation, coordination and interaction among the Arctic states is sufficient and no other organization is needed to fill this role. While it is true that the Arctic Council has provided an excellent venue for the Arctic states to address issues, it is also true that these issues are limited. The primary focus of the Arctic council is on sustainable development and environmental protection and does not address issues of security, by design in their original charter.<sup>37</sup> The Arctic Council would not be the appropriate venue for IGOs, NGOs, and commercial entities to address their issues, either. While participation and cooperation with the Arctic Council should most definitely continue, it is not the answer to all of the issues facing the United States or the other Arctic nations.

One might also argue that the sea ice decline is exaggerated and that there is no need for any action. While it is possible that the models have exaggerated the dates for "ice-free" summers, the reality, and even more importantly the perception, is that it is becoming more and more accessible and international and commercial entities are acting on these beliefs and

13

<sup>&</sup>lt;sup>37</sup> Arctic Council, "Declaration on Establishment of The Arctic Council (The Ottawa Declaration) - 1996" <a href="http://arctic-council.org/filearchive/Declaration%20on%20the%20Establishment%20of%20the%20Arctic%20Council-1.pdf">http://arctic-council.org/filearchive/Declaration%20on%20the%20Establishment%20of%20the%20Arctic%20Council-1.pdf</a> [accessed 13 April 2010].

perceptions. For example, Svend Aage Christensen notes that, "The Danish shipping company has started investing money in ships for Arctic sailing," he also claims that, "the shippards have their order books full of orders for ice strengthened cargo ships (STX Europe, ASA, Finnyards, Mitsubishi), most of them to be used in the Russian part of the Arctic regions." <sup>39</sup>

It might also be said that the disputes are exaggerated. All eight Arctic nations have agreed to utilize UNCLOS for resolution of their disputes. However, if one or more country is not satisfied with the decision, the potential for conflict may not be averted. There is also potential for issues if a vessel enters waters that Russia or Canada view as internal, without receiving prior permission. If Russia or Canada wish to enforce their stand, they might take action which could be seen as hostile, or create a hostile reaction to their efforts to control what they view as their waters.

One might also say that the importance of the Arctic as a short-cut between various ports is incorrect. As Svend Aage Christensen stated in his brief to the Danish Institute for International Studies, he believes that the claim of the shorter Northern Sea routes has been overstated. His claim is that most of the routes are not all that much shorter and when you factor in the dangers of ice-navigation and reduced speed required through ice-infested waters as well as higher insurance costs, the routes will not be advantageous to commercial shippers and will therefore not create much increase in maritime traffic in the Arctic. He does concede that there will likely be an increase in what he terms destination traffic as opposed to transit traffic. This includes "cruises and traffic which serve the local communities or directly or indirectly have to

<sup>&</sup>lt;sup>38</sup> Svend Aage Christensen, "Are the Northern Sea Routes Really the Shortest? Maybe a too Rose-coloured picture of the Blue Arctic Ocean," (brief, Danish Institute for International Studies, February 2009) <a href="https://www.diis.dk/sw74533.asp?usepf=true">https://www.diis.dk/sw74533.asp?usepf=true</a> [accessed 26 March 2010]: 3.

<sup>39</sup> Ibid. 4.

<sup>&</sup>lt;sup>40</sup> Ibid, 3.

do with extraction of resources or preparation for this." <sup>41</sup> Many of the routes that were noted in his brief seemed very limited and seemed carefully selected to support his theory. For instance he lists routes that would make no logical sense to assume that it would be a shorter route via the Arctic such as Marsailles to Singapore, Rotterdam to Singapore, New York to Singapore and even Gioia Tauro, Italy to Hongkong. He does list a few that it would be logical to assume an Arctic route might save some distance such as New York to Shanghai, London to Yokohama and Hamburg to Seattle. Not surprisingly, it turns out that these routes would benefit from an Arctic transit, saving 3850km, 7359km, 3651km respectively and this is according to the figures he lists. 42 A route that is 7359km (4297.5nm) shorter could mean a savings of over 238 hrs at 18 kts. While it may take some time for shipping companies to be able to realize profits by taking these northern routes, it is obvious that at least some have expressed an interest. In the summer of 2009 a test voyage was conducted by two German commercial vessels from "South Korea to the Netherlands via the Northern Sea Route." <sup>43</sup> In the same brief that Christensen mentions the Danish company and their interest in investing in ships for Arctic sailing which was noted previously, he later goes on to mock their reasons, stating that "it is rather interesting that 12 days can be saved on certain trips if one has to wait for one month for the right conditions."44 While he makes a point, it is rare that a commercial company will expend such a large investment without doing considerable homework and crunching numbers. The fact that they have actually purchased ships for Arctic sailing speaks volumes on their belief that their investment will pay off.

<sup>&</sup>lt;sup>41</sup> Ibid 4. <sup>42</sup> Ibid 2.

<sup>&</sup>lt;sup>43</sup> Jakobson.

<sup>&</sup>lt;sup>44</sup> Christensen, 3.

#### RECOMMENDATIONS

Three Geographic Combatant Commanders currently share responsibility for the Arctic:

U.S. Pacific Command (PACOM), Northern Command (NORTHCOM) and European

Command (EUCOM). However, with Alaska falling under NORTHCOM as well as the mission for homeland security, it would be prudent for NORTHCOM to be designated as the lead for Arctic activities while coordinating closely with EUCOM and PACOM.

NORTHCOM, with the assistance of EUCOM and PACOM, should continue to press for ratification of UNCLOS, which would give the United States a seat at the table and a say in the claims of the other Arctic nations as well as a basis for establishing United States' claims in the Arctic. However, while the Combatant Commander can make recommendations, the actual ratification lies in the hands of Congress and the political leaders.

What the Combatant Commander does have more control over is the establishment of a JIATF-High North. In order to ensure long term success and maximize participation amongst all of the U.S Arctic stakeholders, NORTHCOM should, through the Secretary of Defense, request a Presidential Policy Directive which would direct the establishment of a JIATF-High North to protect the national interests of the United States in the Arctic and ensure cooperation amongst all stakeholders to provide for a safe and secure Arctic.

## **CONCLUSION**

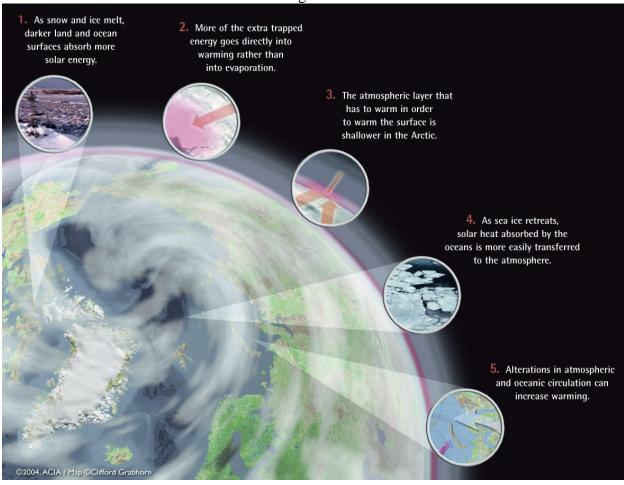
The vast resources which are believed to exist in the Arctic along with the associated economic and geo-strategic issues make the Arctic a very important area with regards to United States' national security and interests. Opportunities for conflict are present due to the disputed areas in the Arctic; however vast opportunities for cooperation also exist. The rapid decline of

ice as well as the perception that the United States is not taking its role as an Arctic nation seriously makes the need for immediate action imperative. By creating a JIATF-High North, two major steps towards securing United States' interests in the Arctic could be immediately realized. This would send a much needed signal to all Arctic Stakeholders that the United States is committed to ensuring a peaceful and cooperative Arctic environment, while also physically establishing a foundational organization within the Arctic to protect vital United States' national interests. As Rear Admiral Dave Titley, Oceanographer of the Navy, so aptly noted, "Deterrence is letting other nations know that we are up there, that we are an Arctic nation, and that we have equities."

<sup>&</sup>lt;sup>45</sup> Bob Freeman, "Conference Addresses Navy's Role in a Changing Arctic," (4 October 2009), <a href="http://www.navy.mil/search/display.asp?story\_id=48533">http://www.navy.mil/search/display.asp?story\_id=48533</a>> [accessed 4 March 2010].

## **ILLUSTRATIONS**

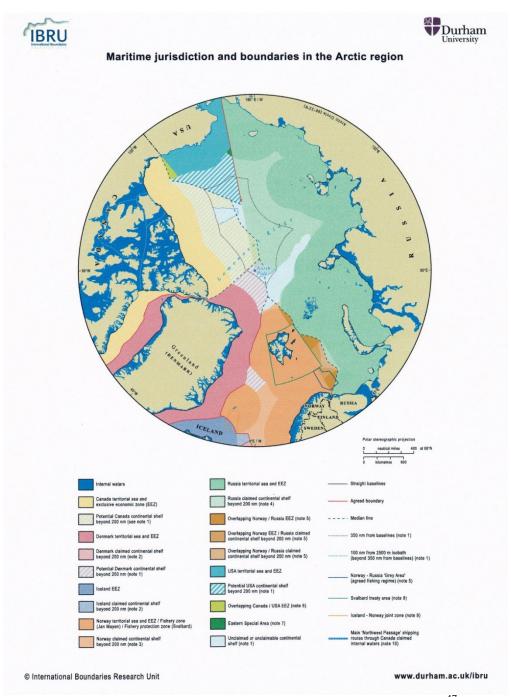
Figure 1



Why the Arctic Warms Faster than Lower Latitudes. 46

<sup>&</sup>lt;sup>46</sup> Arctic Climate Impact Assessment, "Impacts of a Warming Arctic: Arctic Climate Impact Assessment," (New York: Cambridge University Press, 2004).

Figure 2



Maritime Jurisdiction and boundaries in the Arctic Region<sup>47</sup>

-

<sup>&</sup>lt;sup>47</sup> International Boundaries Research Unit, Durham University, <a href="http://dur.ac.uk/resources/ibru/arctic.pdf">http://dur.ac.uk/resources/ibru/arctic.pdf</a> [accessed 11 April 2010]. The notes referenced in the figure can be accessed via the web site.

Figure 3

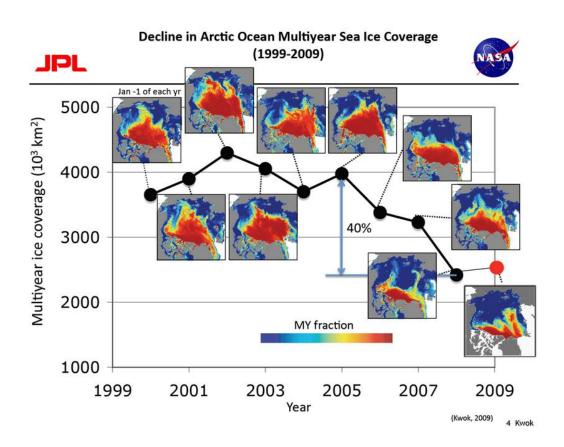
# ATLANTIC OCEAN Greenland Sea SVALBARD GREENLAND RUSSIAN FEDERATION North Pole ARCTIC OCEAN CANADA U.S.A. (Alaska)

# **Arctic Ocean Marine Routes**

Arctic sea routes - Northern sea route and Northwest Passage<sup>48</sup>

 $<sup>^{48}\</sup> Arctic\ Marine\ Transport\ Workshop, < http://images.google.com/imgres?imgurl=http://benmuse.typepad.com/imgres?imgres?imgurl=http://benmuse.typepad.com/imgres?imgurl=http://benmuse.typepad.co$  $ben\_muse/images/arctic\_sea\_routes.jpg\&imgrefurl=http://benmuse.typepad.com/ben\_muse/2005/10/index.html\&userunges/arctic\_sea\_routes.jpg\&imgrefurl=http://benmuse.typepad.com/ben\_muse/2005/10/index.html\&userunges/arctic\_sea\_routes.jpg\&imgrefurl=http://benmuse.typepad.com/ben\_muse/2005/10/index.html\&userunges/arctic\_sea\_routes.jpg\&imgrefurl=http://benmuse.typepad.com/ben\_muse/2005/10/index.html\&userunges/arctic\_sea\_routes.jpg\&imgrefurl=http://benmuse.typepad.com/ben\_muse/2005/10/index.html\&userunges/arctic\_sea\_routes.jpg\&imgrefurl=http://benmuse.typepad.com/ben\_muse/2005/10/index.html\&userunges/arctic\_sea\_routes.jpg\&imgrefurl=http://benmuse.typepad.com/ben\_muse/2005/10/index.html&userunges/arctic\_sea\_routes.jpg&imgrefurl=http://benmuse.typepad.com/ben\_muse/2005/10/index.html&userunges/arctic\_sea\_routes.jpg&imgrefurl=http://benmuse/2005/10/index.html&userunges/arctic\_sea\_routes.jpg&imgrefurl=http://benmuse/arctic_sea_routes.jpg&imgrefurl=http://benmuse/a$  $g = \_VzVZXhtSlK2oVxmYJk4WhMQ5FzI = \&h = 540\&w = 720\&sz = 53\&hl = en\&start = 6\&um = 1\&itbs = 1\&tbnid = f\_h9$ WoMIgEAA6M:&tbnh=105&tbnw=140&prev=/images%3Fq%3Darctic%2Bsea%2Broutes%26um%3D1%26hl%3 Den%26sa%3DN%26tbo%3D1%26rlz%3D1T4SKPB\_enUS331US332%26tbs%3Disch:1> [accessed 12 April 2010].

Figure 4

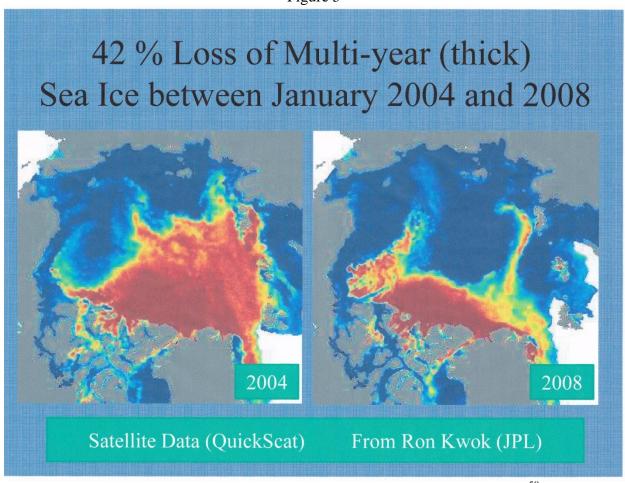


Decline in Arctic Ocean Multiyear Sea Ice Coverage (1999-2009)<sup>49</sup>

<sup>-</sup>

<sup>&</sup>lt;sup>49</sup>Ron Kwok, NASA/JPL, "Satellites Show Arctic Literally on Thin Ice: Briefing Materials" <a href="http://www.nasa.gov/topics/earth/features/seaice\_status09\_prt.htm">http://www.nasa.gov/topics/earth/features/seaice\_status09\_prt.htm</a> [accessed 12 April 2010].

Figure 5



42% Loss of Multi-Year Sea Ice between January 2004-2008<sup>50</sup>

<sup>&</sup>lt;sup>50</sup> James Overland, "Summer Sea Ice is Leaving the Arctic within 30 Years," NOAA/Pacific Marine Environmental Laboratory, Seattle, WA, (presentation, U.S. Naval Academy, Alumni Center, Annapolis MD, 10 June 2009) <a href="http://www.star.nesdis.noaa.gov/star/documents/2009Ice/Day2/Overland\_day2.pdf">http://www.star.nesdis.noaa.gov/star/documents/2009Ice/Day2/Overland\_day2.pdf</a> [accessed 13 April 2010].

#### **BIBLIOGRAPHY**

- Anderson, Alun. *After the Ice: Life, Death, and Geopolitics in the New Arctic.* New York: Harper-Collins Publishers, 2009.
- Amos, Jonathan. "Arctic Summers Ice-free 'by 2013." *BBC News* (12 December, 2007). <a href="http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7139797.stm">http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7139797.stm</a> [accessed 11 April 2010].
- Arctic Council, "Declaration on Establishment of the Arctic Council (The Ottowa Declaration) 1996." <a href="http://arctic-council.org/filearchive/Declaration%20on%20the%20">http://arctic-council.org/filearchive/Declaration%20on%20the%20</a> Establishment%20of%20the%20Arctic%20Council-1.pdf> [accessed 13 April 2010].
- Arctic Council. "Arctic Marine Shipping Assessment 2009 Report." <a href="http://arctic-council.org/filearchive/amsa2009report.pdf">http://arctic-council.org/filearchive/amsa2009report.pdf</a>> [accessed 26 March 2010].
- Bacon, Lance M. "Ice breaker." Armed Forces Journal, (March 2010): 17.
- Baldor, Lolita C. "As Ice Melts, NORTHCOM Eyes Arctic Patrols." *Army Times* (13 May 2008). <a href="http://www.armytimes.com/news/2008/05/ap\_northernborder\_051208/">http://www.armytimes.com/news/2008/05/ap\_northernborder\_051208/</a> [accessed 22 February 2010].
- Bogdanos, Matthew F. "Joint Interagency Cooperation: The First Step." *Joint Forces Quarterly* no. 37 (2nd Quarter, 2005). <a href="http://www.army.mil/professionalwriting/volumes/volume3/june\_2005/6\_05\_2.html">http://www.army.mil/professionalwriting/volumes/volume3/june\_2005/6\_05\_2.html</a> [accessed 16 April 2010].
- Borgerson, Scott G. "Arctic Meltdown: The Economic and Security Implications of Global Warming." *Foreign Affairs*, no. 87 (Mar/Apr 2008). <a href="http://proquest.umi.com/login/user">http://proquest.umi.com/login/user</a> [accessed 11 April 2010].
- Byers, Michael. *Who Owns the Arctic?: Understanding Sovereignty Disputes in the North.* Berkeley: Douglas & McIntyre Publishers 2010.
- Christensen, Svend Aage. "Are the Northern Sea Routes Really the Shortest? Maybe a too Rose-coloured picture of the Blue Arctic Ocean," (brief, Danish Institute for International Studies, February 2009) <a href="https://www.diis.dk/sw74533.asp?usepf=true">https://www.diis.dk/sw74533.asp?usepf=true</a> [accessed 26 March 2010].
- Emmerson, Charles. The Future History of the Arctic. New York: Public Affairs, 2010.
- Freeman, Bob. "Conference Addresses Navy's Role in a Changing Arctic." (4 October 2009). <a href="http://www.navy.mil/search/display.asp?story\_id=48533">http://www.navy.mil/search/display.asp?story\_id=48533</a>> [accessed 4 March 2010].
- Galeotti, Mark. "Cold Calling Competition Heats up for Arctic Resources." *Janes Intelligence Review*, (18 September 2008). <a href="http://www.janes.com">http://www.janes.com</a> [accessed 1 March 2010].

- Gunitskiy, Vsevolod. "On Thin Ice: Water Rights and Resource Disputes in the Arctic Ocean." *Journal of International Affairs* no. 61 (Spring 2008). <a href="http://proquest.umi.com/login/user">http://proquest.umi.com/login/user</a>> [accessed 16 March 2010].
- Gvozdas, Susan. "Commandant: Service Ill-prepared for Increased Arctic Traffic." *Navy Times* (22 June 2009). <a href="http://proquest.umi.com/login/user">http://proquest.umi.com/login/user</a>> [accessed 3 March 2010].
- Harrington, Caitlan. "Eyeing up the New Arctic: Competition in the Arctic Circle." *Janes Defence Weekly* (23 January 2008). <a href="http://www.janes.com">http://www.janes.com</a>> [accessed 1 March 2010].
- Hobson, Sharon and Casandra Newell. "Shrinking Ice Cover Creates Opportunities and Threats." *Janes Navy International*, (18 December 2008). <a href="http://www.janes.com">http://www.janes.com</a> [accessed 1 March 2010].
- Howard, Roger. *The Arctic Gold Rush: New Race for Tomorrow's Natural Resources.* New York: Continuum Books, 2009.
- Jakobson, Linda. "China Prepares for an Ice-Free Arctic." *SIPRI Insights on Peace and Security*, no. 2010/2 (March 2010). < http://books.sipri.org/files/insight/SIPRIInsight1002.pdf> [accessed 10 March 2010].
- Keskitalo, E. C. H. *Negotiating the Arctic: The Construction of an International Region*. New York: Routledge, 2004.
- Luck, Gary, General (Ret), and Colonel (Ret) Mike Findlay. *Insights and Best Practices: Interagency, Intergovernmental, Nongovernmental and Private Sector Coordination (A joint Force Operational Perspective)*, (February 2009).
- O'Dwyer, Gerard. "Nordic Council Urges Focus on Common Defense." *Defense News* (7 December 2009). <a href="http://proquest.umi.com/login/user">http://proquest.umi.com/login/user</a>> [accessed 3 March 2010].
- O'Dwyer, Gerard. "Russia Warns Denmark Over Arctic Arms Race." *Defense News*, (3 Aug 2009). <a href="http://proquest.umi.com/login/user">http://proquest.umi.com/login/user</a> [accessed 3 March 2010].
- Presidential Directive. "National Security Presidential Directive-66/Homeland Security Presidential Directive-25, 2009." < http://www.nsf.gov/od/opp/opp\_advisory/briefings/may2009/nspd66\_hspd25.pdf> [accessed 13 March 2010].
- Pugliese, David. "New Mission, New Climate." *Defense News* (16 November 2009). <a href="http://proquest.umi.com/login/user">http://proquest.umi.com/login/user</a>> [accessed 3 March 2010].
- Rowe, Elana Wilson, ed. Russia and the North. Ottawa: University of Ottawa Press, 2009.

- Russian Strategy. "Basics of the State Policy of the Russian Federation in the Arctic for the period til 2020 and for a further Perspective." (Sept 18, 2008). < http://www.arcticgovernance.org/russia-basics-of-the-state-policy-of-the-russian-federation-in-the-arctic-for-the-period-till-2020-and-for-a-further-perspective.4651232-142902.html> [accessed 2 April 2010].
- Scutro, Andrew. "U.S. Navy Preps for Uncharted Arctic Waters." *Defense News* (7 December 2009). <a href="http://proquest.umi.com/login/user">http://proquest.umi.com/login/user</a>> [accessed 3 March 2010].
- Smith-Windsor, Brooke. "Opinion: Time to Stop 'Sexing Up' Arctic Security Issues." *Janes Defence Weekly* (12 Aug 2009). <a href="http://www.janes.com">http://www.janes.com</a> [accessed 1 March 2010].
- Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller, eds. *IPCC*, 2007: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. New York: Cambridge University Press, 2007.
- State Department. "Press Release: U.S.-Canada Joint Expedition to Survey the Extended Continental Shelf in the Arctic," *State Department Document*, (Jul 28, 2009). <a href="http://proquest.umi.com">http://proquest.umi.com</a> [accessed 3 March 2010].
- Stoltenberg, Thorvald. "Nordic Cooperation on Foreign and Security Policy: Proposals presented to the extraordinary meeting of Nordic foreign ministers in Oslo on 9 Feb 2009." (9 Feb 2009). <a href="http://www.mfa.is/media/Frettatilkynning/Nordic\_report.pdf">http://www.mfa.is/media/Frettatilkynning/Nordic\_report.pdf</a>> [accessed 22 March 2010].
- Task Force Climate Change. "Navy Arctic Roadmap." (9 Nov 2010). < http://www.wired.com/images\_blogs/dangerroom/2009/11/us-navy-arctic-roadmap-nov-2009.pdf> [accessed 22 March 2010].
- Titley, David W., Rear Admiral, USN, and Courtney C. St. John. "Arctic Security Considerations and the U.S. Navy's Roadmap for the Arctic." *Naval War College Review*, no. 63 (Spring 2010).
- Tominaga, Miwa. "Dr. Wieslaw Maslowski predicted a 2013 Ice Free Summer Arctic Five Years Ago Now he says that May Have Been Too Conservative." *Beyond zero Emissions*, (24 March 2008). <a href="http://www.beyondzeroemissions.org/print/48">http://www.beyondzeroemissions.org/print/48</a>> [accessed 11 April 2010].
- Treadwell, Mead, Chair U.S. Arctic Research Commission, Testimony before the Senate Committee on Appropriations, Homeland Security Subcommittee Field Hearing, "U.S. Strategic Interests in the Age of an Accessible Arctic...What We Need to Know and Do Now," University of Alaska Anchorage on Aug 20, 2009. <a href="http://www.arctic.gov/testimony/treaadwell-08-20-09.pdf">http://www.arctic.gov/testimony/treaadwell-08-20-09.pdf</a>> [accessed 26 March 2010].

- U.S. Department of the Navy. Naval Warfare Publication 1-14M, *The Commander's Handbook on the Law of Naval Operations*. Norfolk, VA: Department of the Navy, 2007.
- U.S. Office of the Chairman of the Joint Chiefs of Staff. *Interagency, Intergovernmental Organization, and Nongovernmental Organization Coordination during Joint Operations*. Joint Publication (JP) 3-08, Volume I. Washington D.C.: CJCS, 17 March 2006.
- U.S. Office of the Chairman of the Joint Chiefs of Staff. *Interagency, Intergovernmental Organization, and Nongovernmental Organization Coordination during Joint Operations*. Joint Publication (JP) 3-08, Volume II. Washington D.C.: CJCS, 17 March 2006.
- U.S. Office of the Chairman of the Joint Chiefs of Staff. *Joint Task Force Headquarters*. Joint Publication (JP) 3-33, Washington D.C.: CJCS, 16 February 2007.
- Yeatman, Richard M. "JIATF-South: Blueprint for Success." *Joint Forces Quarterly* (July 2006), < http://findarticles.com/p/articles/mi\_m0KNN/is\_42/ai\_n16609366/> [accessed 9 April 2010].
- Young, Oran R. *Creating Regimes: Arctic Accords and International Governance*. Ithaca: Cornell University Press, 1998.
- Zysk, Katarzyna. "Russia's Arctic Strategy: Ambitions and Constraints." *Joint Forces Quarterly*, no. 57 (2<sup>nd</sup> Quarter 2010).